Approved For lease 2004/02/12 : CIA-RDP78B0570 00800090001

RED EOZ RAD Plan

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PHASES OF INVESTIGATION

BOYD COMMITTEE DEFINING - POSSIBLE PI ORGANIZATIONS

PI TASKS & REQUIREMENTS

PI TEMPORAL VIEWING REQUIREMENTS

INVESTIGATE EQUIPMENT REQUIREMENTS & OPTIONS

CONSIDERING INDIVIDUAL PI TASKS
CONSIDERING CONCEPT I AND II
CONSIDERING PLAN A AND B

RECOMMENDATIONS OF RED PROGRAM BASED UPON ABOVE

DECLASS REVIEW by NIMA/DOD

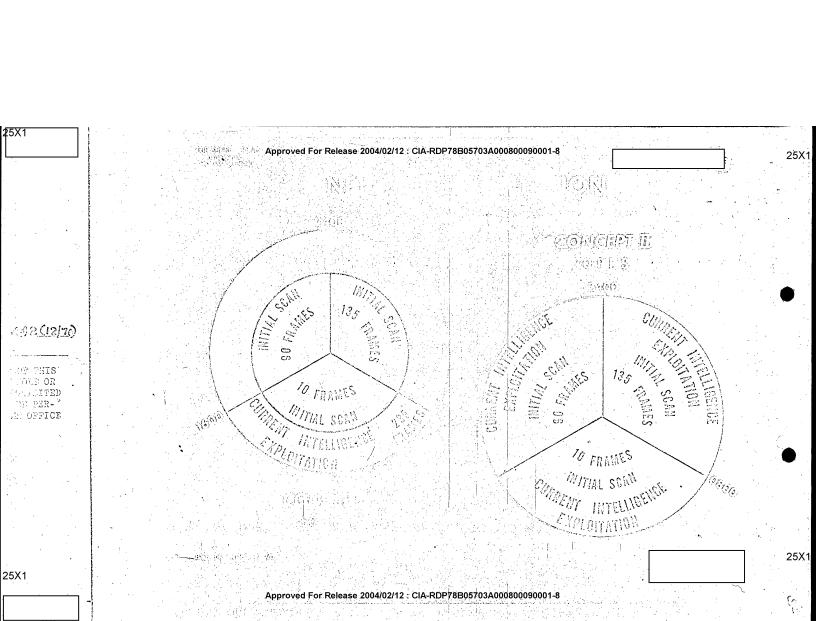


INVESTIGATION SCOPE

EOI EXPLOITATION SYSTEM Based primarily on PI Requirements

OTHER RELEVANT FACTORS NOT CONSIDERED

- I. Managerial Structure of EOI Facility
- II. Target Reprogramming Cycle or Mechanism
- III. Re-tasking of Target Coverage
- IV. Image Re-production Requirements & Procedures
 - V. Support Function Requirements



INITIAL SCAN P.I. FUNCTIONS (STATION REQUIREMENTS)

- 1. PRE-ACQUISITION PREPARATION
- 2. SCAN PRIMARY EOI IMAGE
- 3. COMPARE IT WITH PREVIOUS IMAGERY
- 4. LOCATE IMAGE ON A MAP
- 5. REVIEW TARGET COLLATERAL GRAPHICS
- 6. REVIEW TARGET COLLATERAL TEXT
- 7. REPORT
- 8. COMMUNICATE

ALTERNATIVE PLANS FOR EQUIPPING THE INITIAL SCAN P.I. STATION

PLAN A PLAN B

CHARACTERISTICS:

HARD-COPY EOI IMAGERY

USE EXISTING INVENTORY AND/OR TECHNOLOGY ON ALL FUNCTIONS

MINIMUM RED-

VIDEO EOI DISPLAYS

USE ADVANCED TECHNOLOGY WHERE MOST EFFICIENT

EXTENSIVE RED

TRADE-OFFS:

KNOWN TECHNOLOGY

LEAST COST

MORE MANPOWER REQUIRED
- DAILY MANUAL UPDATING
OF TARGET PACKETS

POORER TIME RESPONSE FOR PI FUNCTIONS AND DISTRIBUTION OF INFORMATION

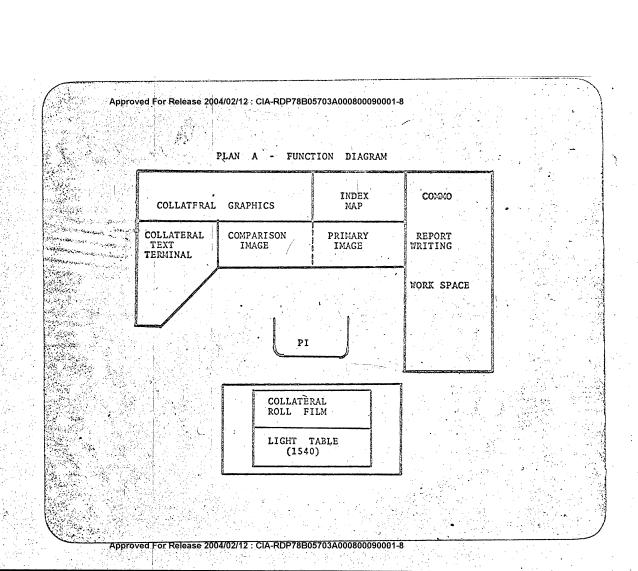
POOR EXPANSION POTENTIAL FOR INCREASED IMAGERY ACQUISITION TECHNOLOGY RISKS

HIGH INITIAL COST

LOWER MANPOWER REQUIREMENTS

AUTOMATED SYSTEM DESIGN
PARTICULARLY FOR EOI SYSTEM

GOOD EXPANSION POTENTIAL



PLAN A

INITIAL SCAN P.I. STATION - PLAN A PHILOSOPHY

PRIMARY IMAGE DISPLAY

TO SCAN NEW EOI IMAGE FUNCTION:

EQUIPMENT OPTIONS:

1. LIGHT TABLES

ADVANTAGES: COULD POSSIBLY USE EXISTING EQUIPMENT

NEW DESIGN (TABLE AND OPTICS) REQUIRED IF FORMAT LARGER THAN 9.0" PROBLEMS:

REAR PROJECTION VIEWER

ADVANTAGES: GROUP VIEWING AND SIMPLE TECHNOLOGY

PROBLEMS: NON-STEREO; LARGE SIZE FOR FORMATS OVER 6.6"

R&D REQUIREMENTS:

- IF : LIGHT TABLE -
 - a. FORMAT SMALLER THAN 9 1/2" = NO RED
 - FORMAT LARGER THAN 9 1/2" = DEVELOPMENT OF LONG RHOMBOIDS FOR STEREO
- IF REAR PROJECTION VIEWER --
 - MODEST INVESTMENT FOR MONOVIEWING
 - HIGH INVESTMENT FOR STEREO

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INITIAL SCAN P.I. STATION - PLAN

COLLATERAL IMAGE DISPLAY

FUNCTION - TO COMPARE NEW IMAGE WITH PREVIOUS EOI, FOR TARGET CHANGE

STAT

EQUIPMENT OPTIONS -

LIGHT TABLE

ADVANTAGES: EXISTING EQUIPMENT SUITABLE FOR AND_SMALL FORMAT EOI

STAT

PROBLEMS: NONE IF CHIPS PROVIDED FOR COLLATERAL IMAGERY.

REAR PROJECTION VIEWER

ADVANTAGES: GROUP VIEWING AND COMPARISON

PROBLEMS: OPTICAL PROJECTION & DISPLAY OF DIFFERENT FORMAT AND DIFFERENT QUALITY IMAGES ON A COMMON PROJECTOR;

· HANDLING OF MULTI-FORMAT FILMS;

HYBRID - LIGHT TABLE FOR FOR EOI

STAT

R&D REQUIREMENTS

- 1. IF LIGHT TABLE
 - a. FORMAT SMALLER THAN 9 1/2" = NO RED ON TABLE OR OPTICS
 - b. FORMAT LARGER THAN 9 1/2" = NEW RHOMBOIDS
- 2. IF REAR PROJECTION VIEWER--DEVELOPMENT OF A "VERSATILE" PROJECTOR
- 3. COLLATERAL HANDLING SYSTEM FOR INFO OVER AND ABOVE TARGET

FUNCTION - TO LOCATE EOI GROUND COVERAGE, TARGET POSITIONS, AND FLIGHT PATH ON A MAP

EQUIPMENT OPTIONS -

PRE-ANNOTATED PAPER MAP ON A BOARD

PERMITS PENCIL NOTES BY THE P.I. POSSIBLE ADVANTAGES: USE OF PLOTTER

STORAGE, RETRIEVAL & HANDLING OF MANY LARGE MAP PROBLEMS: SHEETS

MICROFORM MAP CHIP PROJECTOR

ADVANTAGES: PERMITS STORAGE, RETRIEVAL & DISPLAY OF ANY

MAP IN REAL TIMÉ;

REQUIRES MANUAL ANNOTATION OF GROUND COVERAGE

OF EACH EOT IMAGE

PROJECTED MAP DISPLAY WITH AUTOMATED OVERLAYS

ADVANTAGES: MANUAL HANDLING ELIMINATED

PROBLEMS: DEVELOPMENT OF NEW EQUIPMENT

RED REQUIREMENTS -

- IF PRE-ANNOTATED PAPER MAP SHEETS--DEVELOPMENT OF A SUITABLE MOUNTING BOARD;
- IF MICROFORM MAP CHIP PROJECTOR -- DEVELOPMENT OF AN ANNOTATION PROCEDURE; EQUIPMENT MODIFICATIONS AS A FUNCTION OF P.I. REQUIREMENTS
- EQUIPMENT DEVELOPMENT AS RELATES TO OPTION 3.

P.I. STATION INITIAL SCAN DISPLAY GRAPHICS COLLATERAL

TO REVIEW TARGET GRAPHICS (P.I. KEYS, LINE DRAWINGS, GROUND PHOTOS, ETC.)

EQUIPMENT OPTIONS -

PRE-ASSEMBLED HARD-COPY TARGET PACKETS

USE OF CURRENT KNOWN PROCEDURES; NEW GRAPHICS EASILY ADDED TO THE PACKET

STORAGE, RETRIEVAL, UP-DATING AND DISTRIBUTION SYSTEM IS MANUAL, TIME-CONSUMING; P.I. REVIEW

OF MATERIALS IS CUMBERSOME

MICROFORM GRAPHICS CHIP PROJECTOR

PERMITS EFFECTIVE STORAGE, AUTOMATED RETRIEVAL AND CONTIGUOUS DISPLAY OF TARGET GRAPHICS IN ADVANTAGES:

REAL TIME;

UP-DATING PROCEDURE; CONVERSION OF EXISTING FILES PROBLEMS:

RED REQUIREMENTS -

- IF HARD-COPY TARGET PACKETS NO RED
- IF MICROFORM GRAPHICS CHIP PROJECTOR PROCUREMENT, MODIFICATION, OR DEVELOPMENT OF PROJECTOR

STATION INITIAL SCAN P.I.

COLLATERAL TEXT DISPLAY

FUNCTION - TO REVIEW TARGET-RELATED COLLATERAL INFORMATION

EQUIPMENT OPTIONS

DATA-BASE TERMINALS WITH IIS (EXPANDED)

ADVANTAGES: UTILIZATION OF EXISTING SYSTEM

PROBLEMS: CONTENT AND RESPONSE TIME MUST BE EXPANDED

#(1) PLUS REPORT MICROFICHE READERS

PERMITS RAPID READING OF COLLATERAL INTELLIGENCE REPORTS ADVANTAGES:

ALL REPORTS NOT ON MICROFICHE; NON-STANDARDIZATION

OF MICROFICHE FORMAT; NON-STANDARDIZATION OF

MICROFICHE READERS

RED REQUIREMENTS: (OTHER THAN EXPANDED IIS)

(FOR PLAN A, THIS FUNCTION REQUIRES 'PRODUCT IMPROVEMENT' RATHER THAN 'R&D')

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REI	PORTING	CONCEPT		e de la composition	1	
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CONCEPT I

INITIAL SCAN (SWING SHIFT & GRAVEYARD SHIFT)

- a, SUMMARY REPORT AT END OF SHIFT
- WARNINGS INDICATIONS CABLES (ITEMS OF INTELLIGENCE SIGNIFICANCE)

(10 MINUTES PER-TARGET)

CURRENT INTELLIGENCE EXPLOITATION (DAY SHIFT)

- a. SAME AS ABOVE (LOW ACTIVITY)
- b. SAME AS ABOVE
- c. ANALYSIS & READOUT OF EACH TARGET

(TO MAINTAIN DATA BASE) (235 TARGETS IN 8 HOURS)

CONCEPT II

INITIAL SCAN & CURRENT INTELLIGENCE EXPLOITATION (AROUND THE CLOCK)

- a. SUMMARY REPORT AT END OF EACH SHIFT
- b. WARNING INDICATIONS CABLES'
- c. ANALYSIS & READOUT OF EACH TARGET

 (30 MINUTES PER TARGET)

INITIAL SCAN P.I. STATION - PLAN A

REPORTING EQUIPMENT

FUNCTION - INTERNAL REPORTING TO SUPERVISOR

- a. TARGET COVERAGE
- b. IMAGE INTERPRETABILITY
- c. TARGET CHANGE FROM "NORMS"
- d. ALARM DETECTIONS .

EQUIPMENT OPTIONS -

1. PRE-FORMATTED PAPER REPORT FORMS (MULTIPLE-CHOICE)

ADVANTAGES: RELATIVELY ERROR-FREE; INTELLIGIBLE; PERMANENT PRINTED RECORD; SIMPLE TO COMPLETE;

PROBLEMS: NONE FORESEEN

2. AUTOMATED INITIAL REPORT SYSTEMS

- B. MULTIPLE-CHOICE KEYBOARD INPUT TO A CENTRAL DISPLAY CONSOLE
- b. TAPE-RECORDED VOICE REPORT TO SUPERVISOR

R&D REQUIREMENTS -

- 1: IF PAPER REPORT FORMS = NO R&D
- 2. IF ONE OF THE AUTOMATED SYSTEMS = DEVELOPMENT OF THE APPROPRIATE INPUT/OUTPUT DEVICES

INITIAL SCAN P.I. STATION

COMMUNICATIONS EQUIPMENT

FUNCTION - TO RECEIVE ASSIGNMENTS, TO TALK WITH SUPERVISOR, TO CONSULT WITH SPECIALISTS, ETC.

EQUIPMENT OPTIONS -

1. NO EQUIPMENT IN P.I. STATION

ADVANTAGES: NO INTERRUPTIONS

- PROBLEMS: TIME TO COMMUNICATE WITH SUPERVISOR, SPECIALIST, ETC. MAY BE IMPORTANT

SECURE TELEPHONE OR INTERCON

ADVANTAGES: TIMELINESS & ACCESSIBILITY

R&D REQUIREMENTS -

SIMPLE AUDIO EQUIPMENT = NO RED

EOI PI STATION SYSTEM DEFINITION

PURPOSE: TO DEVELOP CANDIDATE PI STATION CONFIGURATIONS FOR CONCEPTS I AND II CONSIDERING VARIOUS EQUIPMENT

OPTIONS DESCRIBED.

AREAS OF STUDY:

SYSTEMATIC WORK FLOW ANALYSIS

HUMAN FACTOR CONSIDERATIONS

PHYSIOLOGICAL ASPECTS

FATIGUE

EFFECTIVE USE OF COLLATERAL

EQUIPMENT FEATURES

CANDIDATE PI STATION CONFIGURATIONS

COST AND PERSONNEL TRADE-OFFS

GROWTH POTENTIAL

IMPLEMENTATION TIME TABLE

OUTPUT:

RECOMMENDATION FOR A PARTICULAR PI STATION CONFIGURATION

TIME TABLE

DEFINITION OF REQUIRED RED

RED REQUIREMENTS:

STUDY CONTRACT

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VALUE OF PROPOSED EFFORT-

- o PROVIDES A MEANS TO ASSURE THAT ALL NECESSARY MATTERS ARE CONSIDERED
- o EXAMINES FEASIBLE ALTERNATE APPROACHES ON COMPATIBLE TERMS
- o PRESENTS VALUE/COST OF ALTERNATE APPROACHES
- o ABOVE AS FUNCTION PERSONNEL REQUIREMENTS
- o ASSURES ADEQUATE IDENTIFICATION OF ACTIONS REQUIRED

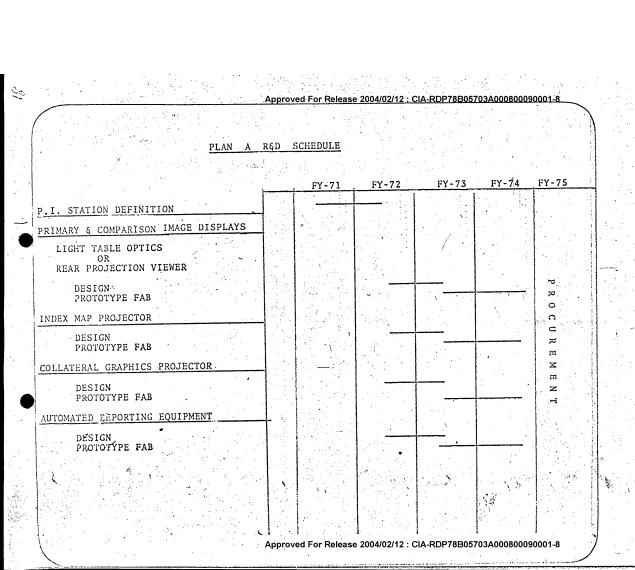
PI STATION - CONFIGURATION & EQUIPMENT REQUIREMENTS

EQUIPMENT - RESEARCH & DEVELOPMENT

PERSONNEL - SELECTION & TRAINING

PROCEDURES - REVISION OR PREPARATION .

SUPPORT FACILITIES - DEFINITION



PURPOSE:

- 1. TO VIEW EOI IMAGERY ON VIDEO
- 2. TO AUTOMATE THE ENTIRE PROCESS WHICH SUPPORTS THE P.I.

WHY VIDEO??

- 1. TO USE ORIGINAL DIGITAL DATA (VERSUS "SECOND GENERATION" HARD COPY)
- 2. FOR 'INSTANT' TRANSMISSION OF AN IMAGE TO HIS SUPERVISOR OR TO ANOTHER VIEWER.
- 3. FOR 'INSTANT' RECALL & DISPLAY OF PAST EOI IMAGERY.
- 4. TO FACILITATE THE MODIFICATION OF THE IMAGE TO ENHANCE ITS INTERPRETABILITY.
 - CONTRAST
 - EDGE ENHANCEMENT
 - SCALE
 - ROTATION
 - GEOMETRY
- 5. TO COMBINE THE FOUR SEPARATE EOI IMAGES INTO ONE SCENE.

PROBLEMS OF VIDEO DISPLAYS

- 1. RESOLUTION & GRAY SCALE?
- 2. DISPLAY SIZE?
- 3. STEREO CAPABILITY?
- 4. IMAGE PERSISTENCE (REFRESH RATE)?
- 5. HOW TO STORE DIGITAL IMAGERY?

R&D REQUIREMENTS

- 1. VIDEO DISPLAY FEASIBILITY STUDY.
 - 2. IMAGERY STORAGE STUDY

WHY AUTOMATION OF SUPPORT FUNCTIONS?

FOR TIMELINESS

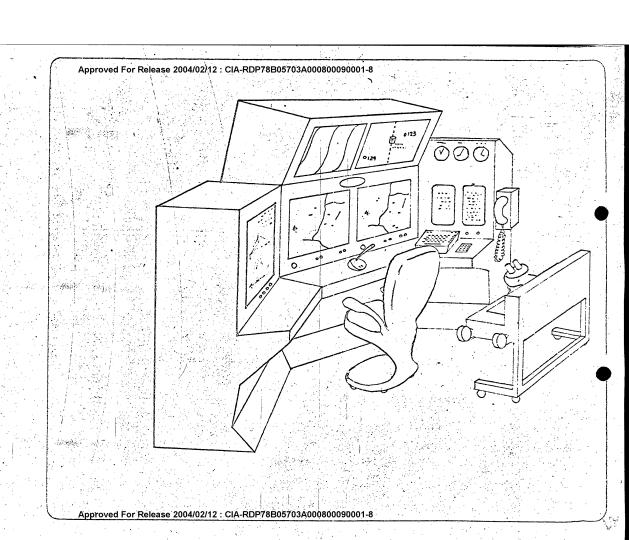
FOR FUTURE SYSTEM EXPANSION

AUTOMATED COLLATERAL SYSTEM

(ASSEMBLY, UPDATE, & DISTRIBUTION OF 'TARGET PACKET'

MATERIALS)

AUTOMATED REPORTING SYSTEM (COMPOSITION, EDITING, APPROVAL, & DISSEMINATION CYCLE)



PRIMARY IMAGE DISPLAY

FUNCTION - TO SCAN NEW EOI IMAGE

EQUIPMENT CANDIDATES:

CATHODE RAY TUBE

ADVANTAGES:

INSTANT DISPLAY OF COLLATERAL IMAGERY; IMAGE MODIFICATION; USE OF ORIGINAL DIGITAL DATA; IMAGE

TRANSMISSION

RESOLUTION; GRAY SCALE; SIZE, STEREO; IMAGE

PERSISTENCÉ

2. LIGHT VALVE

ADVANTAGES: LARGE SCREEN DISPLAY

PROBLEMS: RESOLUTION; STEREO

RED REQUIREMENTS -

1. CRT DISPLAY FEASIBILITY STUDY FY-71

BASED ON SUCCESS OF (1):

DISPLAY DESIGN FY-72

PROTOTYPE FABRICATION FY-73

PROCUREMENT FY-74

INITIAL SCAN P.I. STATION -

COMPARISON IMAGE DISPLAY

FUNCTION - TO COMPARE NEW IMAGE WITH PREVIOUS EOI IMAGE (A 1540 LIGHT TABLE WILL ALSO STILL BE NEEDED IF IT IS NECESSARY TO COMPARE WITH

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EQUIPMENT CANDIDATES - (SHOULD BE SAME AS PRIMARY IMAGE DISPLAY)

1. CATHODE RAY TUBE

SAME ADVANTAGES & PROBLEMS AS P.I.D. WITH ADDITIONAL PROBLEM OF STORAGE OF COLLATERAL IMAGERY

2. LIGHT VALVE - (SAME AS P.I.D.)

R&D REQUIREMENTS -

1. STUDY OF STORAGE METHODS FOR COLLATERAL IMAGERY.

BASED ON SUCCESS OF (1):

2. DISPLAY DESIGN FY-72/

3. PROTOTYPE FABRICATION FY-73

4. PROCUREMENT FY-74



INDEX MAP DISPLAY

FUNCTION - TO LOCATE EOI GROUND COVERAGE ON A MAP

EQUIPMENT OPTIONS -

MICROFORM MAP CHIP PROJECTOR WITH AUTOMATIC OVERLAY PLOT OF GROUND COVERAGE

ADVANTAGE: ELIMINATE MANUAL PLOTTING & PREPARATION OF COVERAGE

OVERLAYS;

REQUIRES DEVELOPMENT OF DISPLAY EQUIPMENT (FEASIBILITY GOOD) **DISADVANTAGES:**

RGD REQUIREMENTS -

FEASIBILITY STUDY OF DISPLAY TECHNIQUES FY-72 2. DESIGN FY-73 PROTOTYPE FABRICATION FY-74

PROCUREMENT FY-75



INITIAL SCAN P.I. STATION -

COLLATERAL GRAPHICS DISPLAY

TO REVIEW TARGET GRAPHICS (P.I. KEYS, LINE DRAWINGS, ETC.)

EQUIPMENT OPTIONS:

1. MICROFORM GRAPHICS CHIP PROJECTOR (SAME AS PLAN A(2)) SLIDE #8

ECRT DISPLAY

ADVANTAGE: MIGHT BE COMBINED WITH MAP INDEX DISPLAY

DISADVANTAGES: ALL DATA WOULD HAVE TO BE DIGITIZED; LOWER

RESOLUTION

RED REQUIREMENTS:

PROCUREMENT MODIFICATION AND/OR DEVELOPMENT OF PROTOTYPE PROJECTOR

FY-72/73

2. PROCUREMENT

STATION - PLAN COLLATERAL TEXT DISPLAY

FUNCTION: TO DISPLAY TARGET-RELATED COLLATERAL TEXT

EQUIPMENT CANDIDATES:

INTERACTIVE QUERY/RESPONSE CONSOLE (VIDEO DISPLAY)

VERY RAPID ACCESS OF DATA BASE INFORMATION TO THE P.I.; MIGHT BE COMBINED WITH AUTOMATED REPORTING (BY THE P.I. INTO THE DATA BASE)

PROBLEMS: HIGH INITIAL COST

R&D REQUIREMENTS:

DEVELOPMENT OF Q/R CONSOLE

INITIAL SCAN P.I. STATION - PLAN B

27

REPORTING EQUIPMENT

FUNCTION: TO REPORT INITIAL TARGET SCAN RESULTS (FOUR REPORTING FUNCTIONS AS IN PLAN A)

EQUIPMENT CANDIDATES:

1. CRT TEXT CONSOLE WITH FORMATTED REPORTS

ADVANTAGES: VERY RAPID REPORTING; FEW SUPPORT PEOPLE REQUIRED; RAPID TRANSMISSION OF REPORTS

PROBLEMS: REQUIRES DEVELOPMENT OF EQUIPMENT-&-TRAINING OF INTERPRETERS

RED REQUIREMENTS:

DESIGN AUTOMATED REPORTING SYSTEM

30

INITIAL SCAN P.I. STATION - PLAN B

COMMUNICATION EQUIPMENT

TO FACILITATE COMMUNICATION WITH SUPERVISOR, P.I. SPECIALIST, ANALYST, ETC.

EQUIPMENT CANDIDATES:

AUDIO/VIDEO COMMUNICATION (INCLUDING IMAGE TRANSMIT)

ELIMINATE PHYSICAL TRANSFER OF HARD COPY IMAGES FOR DECISION PURPOSES

PROBLEMS: HIGH COST; SECURITY; HIGH SPEED DATA LINK REQUIREMENTS

RED REQUIREMENTS:

DEVELOPMENT OF HIGH DATA RATE C.C.T.V. SYSTEM

MAJOR MILESTONES	M.	FY-71	FY-72	FY-73	FY-74	FY-75	
LAN A P.I. STATION DEFINITION EQUIPMENT DESIGN (OR SPECS) PROTOTYPE (DEVELOP. OR MODIF	3 Y)		SION)			(Mit.I.S.T.S	
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